Hanford Waste Management Area C WIR Evaluation
11-12-2019 DOE-NRC Teleconference Summary

By letter dated April 30, 2019 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML19112A091), the Nuclear Regulatory Commission (NRC) issued a Request for Additional Information (RAI) to the Department of Energy (DOE) regarding its Draft Waste Incidental to Reprocessing (WIR) Evaluation for Closure of Waste Management Area C (WMA C) at the Hanford Site. The DOE provided its responses to these RAIs by letter dated October 23, 2019 (ADAMS Accession No. ML19305A296).

On October 29, the DOE held a public meeting with its contractors and the NRC in Richland, Washington to discuss its responses to the NRC RAI. During this meeting, the NRC identified RAI responses that would need further discussion, and as a result, the DOE established three public teleconferences to continue these discussions. The teleconference described below was the last of those teleconferences. Call-in information was posted on the DOE Hanford WMA C webpage (https://www.hanford.gov/page.cfm/WasteManagementAreaC) prior to the call.

The following parties attended the teleconference:

- DOE: Sherri Ross
- NRC: Lee Gladney and Hans Arlt
- Washington River Protection Solutions (WRPS): Doug DeFord, Marcel Bergeron, Paul Rutland, Dan Parker, and Margaret LaMothe
- INTERA: Sunil Mehta and Matt Kozak
- TecGeo: Mike Connelly
- CH2M Hill Plateau Remediation (CHPRC): Bill McMahon
- Veolia: Keith Quigley
- Public: Jerry Yokel (State of Washington)

Discussion

The RAI responses discussed during this teleconference were 2-10 and 2-13. A summary of the discussion is provided below. The RAI comment is briefly summarized followed by a summary of the NRC staff's clarifying questions and the associated discussion during the teleconference. The reader of this teleconference summary should refer to documents above for the full text of the RAIs and DOE's response to the RAIs.

RAI 2-10

This RAI question was under Topic 2, "Radionuclide Inventory and Release Rates," and was based upon the NRC's comment that additional information is needed to support a technical basis for using a high hydraulic conductivity value for the unconfined aquifer. In its RAI, the NRC requested that the DOE provide information to support the value(s) used.

- The response (ORP-63747, Rev. 2) to RAI 2-10 used the term *local* in several locations. NRC staff asked DOE what the approximate distances were when the term *local* was used. DOE discussed that local meant different distances and provided the approximate values.
- DOE and NRC staff discussed the differences in scale between the WMA C Subsurface Transport Over Multiple Phases (STOMP) and the regional Central Plateau Groundwater Model (CPGWM) domains and the differences in grid-block size between the two models.

DOE staff asserted that the CPGWM results have worked well thus far and that constructing a new groundwater model at the WMA C scale would bring its own set of limitations.

- NRC staff inquired if the CPGWM could be updated so that the differences in the geological and hydrogeological framework of the STOMP model and the CPGWM in the C-Tank Farm area are minimized. DOE replied that the detailed data obtained from the smaller area of the tank farm was not easily incorporated into the regional CPGWM.

RAI 2-13

This RAI was under Topic 2, "Radionuclide Inventory and Release Rates," and was based upon the NRC's observation that the differences in the conceptual hydrogeological models near WMA C between the CPGWM and the STOMP model are considerable and that some of the techniques for abstracting information and data from the CPGWM to the STOMP model require additional information.

- NRC asked clarifying questions on the CPGWM volumetric flux calculation window and its alignment with the orientation of the northern boundary of the WMA-C STOMP model. DOE discussed results from the CPGWM for year 2100 that matched the general flow direction of the STOMP model. DOE staff stated that flow direction in the CPGWM was confirmed by particle tracking and that these particle tracking maps could be made available to NRC.
- NRC requested clarification about the position of CPGWM volumetric flux calculation window with the model area as shown in Figure 14 of the RAI responses. The DOE indicated that the window was placed so as to include the general area over the WMA C.
- NRC staff asked clarifying questions on the additional information provided by DOE that explains the need to increase the original prescribed upgradient flux for the northwest boundary condition in STOMP. DOE had stated that the average flux throughout the model domain needed to be maintained. NRC staff questioned the need to maintain the flux, or specific discharge (groundwater flow per unit area) but did agree that the groundwater flow that enters the model domain should equal the flow that exits the model domain. NRC staff emphasized that the key component of the average flux is the layer thickness weighted hydraulic conductivity value of 11,000 m/d [36,000 ft/d], and that there are several sources of uncertainty associated with this value which is the basis for the amount of water available for dilution. DOE staff maintained that the uncertainty and sensitivity analyses bounded this uncertainty.
- NRC staff asked if the aquifer thicknesses along the WMA-C flowpath from the CPGW model could be provided to the NRC staff. DOE agreed that they would provide this information.
- DOE stated that many aspects of the CPGWM are currently being updated with the most recent geological and hydrogeological information, including some data from the surrounding area of the C-Tank Farm.

The NRC indicated that it did not have further questions at this time, but that there could be new questions in the future, especially regarding Concentration Averaging. The DOE also acknowledged that the NRC still had to review the GoldSim information they sent so that there could be more reviews and questions about that information.

An opportunity for public comment was provided at the end of the call. There were no public comments.

Action Items

- The following actions are complete:
  - The DOE uploaded files to BOX EFSS in the following folders:
    - RAI_Response_EMCF, which contains RPP-CALC-63407. This is the Environmental Model Calculation File (EMCF) that contains information about all the sensitivity cases used to support responses to RAIs.
    - RAI_Response_GoldSim_Files, which contains GoldSim files of the 5 sensitivity cases used to support responses to RAIs
    - RAI_Response_GoldSim_Supporting_Files, which contains other files supporting the GoldSim system model calculations
  - The DOE provided RPP-6924, "Statistical Methods for Estimating the Uncertainty in the Best Basis Inventories," and an Excel file showing how relative standard deviation values were calculated for bulk density and Pu-238 for tank C-109.
  - The DOE provided NRC staff "Health Physics Position HPPOS-289 PDR-9306108280", based upon 10 CFR Part 20 and entitled "Mixed Nuclide Classification," which is a document discussing the sum-of-the-fractions rule.
  - The DOE provided a link to the LFRG review reports.
- The DOE will generate and send particle tracking maps from the CPGWM to support RAI 2-13 and show the similarity with the southeasterly flow of the STOMP model. (Complete)
- The DOE agreed to provide the aquifer thicknesses along the WMA-C flowpath within the CPGWM to support RAI 2-13. (Complete)
- A member of the public provided an updated version of NAC-0037, Implementation of Diffusion in GoldSim, to the NRC on November 20, 2019. The NRC made this version available at Agencywide Documents Access and Management System Accession No. ML19326A002. (Complete)
- The NRC will place additional DOE responses to RAIs in ADAMS Accession No. ML20042C425. (Complete)